

## CLAIMS

We claim:

1. A method of producing a reverse image mask comprising the steps of:
  1. depositing a metallic layer on a substrate;
  2. applying resist on the metallic layer to pattern desired features;
  3. plating the metallic layer with a metal film;
  4. stripping the resist; and
  5. etching the metallic layer using the metal film as a mask.

2. The method of claim 1 wherein depositing the metallic layer on the substrate comprises depositing chrome on the substrate.
3. The method of claim 1 wherein the substrate has an attenuated layer deposited thereon.
4. The method of claim 1 wherein the substrate comprises a glass substrate.
5. The method of claim 1 wherein the substrate comprises a quartz substrate.
6. The method of claim 1 wherein the metal film comprises copper.
7. The method of claim 1 wherein the metal film comprises nickel.

1       8.     The method of claim 1 wherein applying resist on the metallic layer to pattern design  
2     features comprises printing a reverse pattern in positive tone resist.

1       9.     The method of claim 1 further comprising the step of etching the metal film to provide  
2     the reverse image mask.

1       10.    The method of claim 1 wherein plating the metallic layer with a metal film comprises  
2     electroplating copper to the metallic layer in areas not covered by the resist pattern.

1       11.    The method of claim 1 wherein applying resist on the metallic layer further comprises  
2     applying assist features proximate the desired features.

3       12.    A method of producing a correct negative reticle with positive tone resist comprising  
4     the steps of:

5                   depositing an opaque metallic layer on a transparent substrate;  
6                   printing a reverse pattern of positive tone resist on the opaque metallic layer  
7     to pattern desired features;  
8                   plating the opaque metallic layer with copper in non-patterned areas;  
9                   stripping the resist; and  
10                  etching the opaque metallic layer using the copper in the non-patterned areas  
11     as a mask.

1       13. The method of claim 12 wherein depositing an opaque metallic layer on a transparent  
2       substrate comprises depositing chrome on the transparent substrate.

1       14. The method of claim 12 wherein the substrate comprises a glass substrate.

1       15. The method of claim 12 wherein the substrate comprises a quartz substrate.

1       16. The method of claim 12 further comprising the step of etching the copper to provide  
2       the correct negative reticle.

1       17. The method of claim 12 wherein plating the opaque metallic layer with copper  
2       comprises electroplating copper to the opaque metallic layer in the non-patterned areas.

1       18. The method of claim 12 wherein printing a reverse pattern of positive tone resist on  
2       the opaque metallic layer further comprises applying assist features proximate the desired  
3       features.

1       19. A method of producing a reverse image mask comprising the steps of:

2           depositing an opaque metallic layer on a substrate;

3           applying resist on the opaque metallic layer to pattern desired features;

4           plating the opaque metallic layer with a metal film;

5           stripping the resist; and

1 etching the opaque metallic layer using the metal film as a mask.

1 20. The method of claim 19 wherein depositing the opaque metallic layer on a substrate  
2 comprises depositing chrome on the substrate.

1 21. The method of claim 19 wherein the substrate has an attenuated layer deposited  
2 thereon.

1 22. The method of claim 19 wherein the substrate comprises a glass substrate.

1 23. The method of claim 19 wherein the substrate comprises a quartz substrate.

1 24. The method of claim 19 wherein the metal film comprises copper.

1 25. The method of claim 19 wherein the metal film comprises nickel.

1 26. The method of claim 19 wherein applying resist on the opaque metallic layer to pattern  
2 design features comprises printing a reverse pattern in positive tone resist.

1 27. The method of claim 19 further comprising the step of etching the metal film to  
2 provide the reverse image mask.

1       28. The method of claim 19 wherein plating the opaque metallic layer with a metal film  
2       comprises electroplating copper to the opaque metallic layer in areas not covered by the resist  
3       pattern.

1       29. The method of claim 19 wherein applying resist on the opaque metallic layer further  
2       comprises applying assist features proximate the desired features.